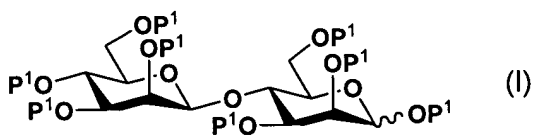


## AMENDMENTS TO THE CLAIMS

1. (Cancelled)

2. (Currently amended) ~~The~~ A method for preparing a trisaccharide (Man $\beta$ 1 $\rightarrow$ 4GlcN $\beta$ 1 $\rightarrow$ 4GlcN) of ~~the~~ a reducing terminal in ~~the~~ a core sugar chain structure of an asparagine-linked glycoprotein, ~~of claim 1, further~~ comprising each of

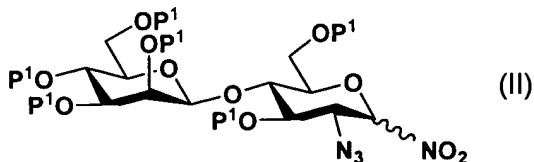
(1) a process of preparing a mannose disaccharide compound (a type of ManP<sup>1</sup> $\beta$ 1 $\rightarrow$ 4ManP<sup>1</sup>) of the formula (I)



wherein P<sup>1</sup> is an OH-protecting group selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, trimethylsilyl and triethyl silyl, and the wavy line means that -OP<sup>1</sup> is linked at an axial or equatorial position, or mixture of both,  
by hydrolyzing a polysaccharide having mannose  $\beta$ -1,4-bonds and protecting OH groups of the resulting hydrolysate,

(2) a process of preparing a glycal compound, in which mannose of ~~the~~ a reducing terminal of the mannose disaccharide is converted to glycal, by halogenation and reduction of the mannose disaccharide (a type of ManP<sup>1</sup> $\beta$ 1 $\rightarrow$ 4ManP<sup>1</sup>), and

(3) a process of preparing an azide disaccharide compound (a type of ManP<sup>1</sup> $\beta$ 1 $\rightarrow$ 4ManP<sup>1</sup>) shown with formula (II) in which ~~the~~ a 2-azide group of mannose in ~~the~~ a reducing terminal is linked at ~~the~~ an equatorial position;

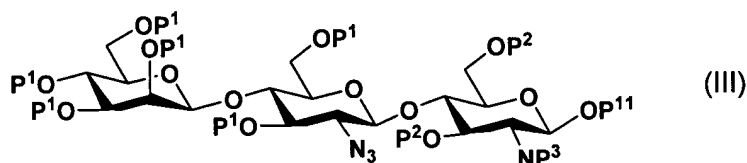


wherein P<sup>1</sup> is the same as described above, the wavy line means that -NO<sub>2</sub> is linked at an axial or equatorial position, or mixture of both,  
 by azidenitration reaction of the glycal compound above.

3. (Currently amended) The method for preparing a trisaccharide (Man $\beta$ 1 $\rightarrow$ 4GlcN $\beta$ 1 $\rightarrow$ 4GlcN) of ~~the~~a reducing terminal in ~~the~~a core sugar chain structure of an asparagine-linked glycoprotein of claim 2, further comprising

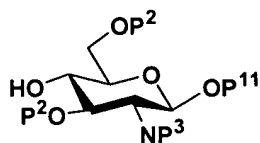
(4) a process of substituting the nitro group of the azide disaccharide compound (a type of ManP<sup>1</sup> $\beta$ 1 $\rightarrow$ 4ManP<sup>1</sup>) with a leaving group selected from the group consisting of fluorine atom, chlorine atom, trihaloacetoimide, pentenyl, alkylthio and arylthio, and

(5) a process of preparing a trisaccharide compound (a type of Man $\beta$ 1 $\rightarrow$ 4GlcNP<sup>1</sup> $\beta$ 1 $\rightarrow$ 4GlcNP<sup>2</sup>) shown with the formula (III);



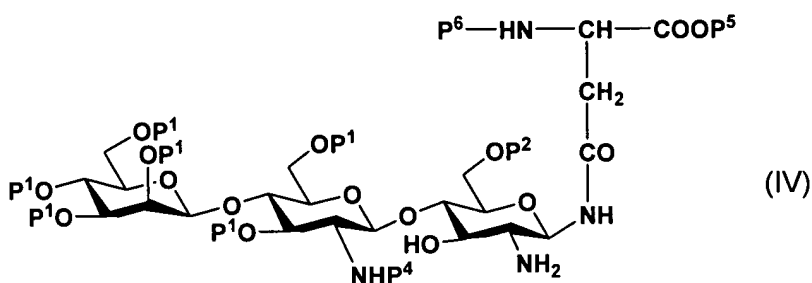
wherein P<sup>1</sup>, P<sup>2</sup>, P<sup>3</sup> and P<sup>11</sup> ~~are~~ is an OH- protecting group, as described above, P<sup>2</sup> is an OH-protecting group selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, trimethylsilyl and triethyl silyl, P<sup>3</sup> is an amino-protecting group selected from the group consisting of phthalimide, tert-butyloxycarbonyl, benzyloxycarbonyl, acetyl, benzoyl and benzyl, and P<sup>11</sup> is an OH-protecting group selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, trimethylsilyl and triethyl silyl, ~~the same above,~~

by a reaction of the product having the leaving group with amino-protected glucopyranoside shown with the formula;

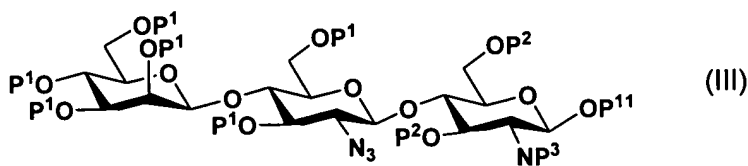


wherein P<sup>2</sup>, P<sup>3</sup> and P<sup>11</sup> ~~are the same as described above~~ is an OH- protecting group, P<sup>3</sup> ~~is an amino-protecting group~~ is an amino-protecting group and P<sup>11</sup> ~~is an OH- protecting group~~.

4. (Currently amended) The method for preparing a trisaccharide (Man $\beta$ 1 $\rightarrow$ 4GlcN $\beta$ 1 $\rightarrow$ 4GlcN) of the a reducing terminal in the a core sugar chain structure of an asparagine-linked glycoprotein of claim 3, further comprising
- (6) a process of preparing an asparagine-linked trisaccharide (Man $\beta$ 1 $\rightarrow$ 4GlcNP<sup>1</sup> $\beta$ 1 $\rightarrow$ 4GlcNP<sup>2</sup>) compound shown with the formula (IV);



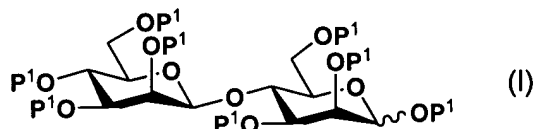
wherein P<sup>1</sup> and P<sup>2</sup> are independently OH-protecting groups, as described above~~the same~~  
~~above~~, P<sup>4</sup> and P<sup>6</sup> are independently amino-protecting groups selected from the group  
consisting of phthalimide, tert-butyloxycarbonyl, benzyloxycarbonyl, acetyl, benzoyl and  
benzyl, and P<sup>5</sup> is a carboxyl-protecting group which is t-Bu,  
 by deprotecting the P<sup>11</sup> group of the compound (III),



wherein P<sup>1</sup>, P<sup>2</sup> and P<sup>11</sup> are independently OH-protecting groups, as described above, and  
 P<sup>3</sup> is an amino-protecting group, as described above,  
reducing the azide group to an amino group, protecting the amino group with an acetyl  
group, forming an oxazoline ring simultaneously with deprotecting a hydroxy group of a  
reducing terminal, and coupling with a protected asparagines derivative after introducing  
a -N=C=S group at the reducing terminal~~coupling of the reducing terminal of the~~  
~~trisaccharide compound above with the protected asparagine derivative.~~

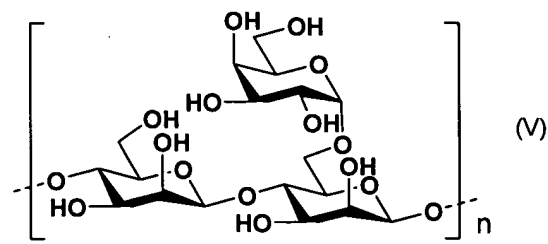
5. (Currently amended) A method for preparing a mannose disaccharide compound

(a type of  $\text{ManP}^1\beta 1 \rightarrow 4\text{ManP}^1$ ) shown with the formula (I);



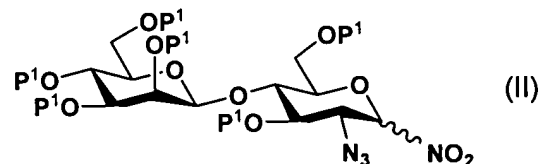
wherein  $\text{P}^1$  is an OH-protecting group selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, trimethylsilyl and triethyl silyl, and the wavy line means that  $-\text{OP}^1$  is linked at an axial or equatorial position, or mixture of both,

by hydrolyzing guar gum or galactomannan of the formula (V);



wherein  $n$  is an integer of 50 or more, a polysaccharide having mannose  $\beta$  1,4 bonds and protecting OH groups of the resulting hydrolysate.

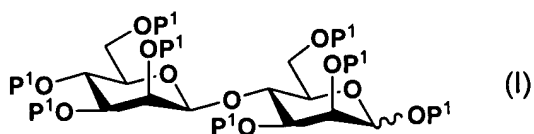
6. (Currently amended) A method for preparing ~~the~~an azide disaccharide (a type of  $\text{ManP}^1\beta 1 \rightarrow 4\text{ManP}^1$ ) shown with the formula (II) in which ~~the~~a 2-azide group of mannose in ~~the~~a reducing terminal is linked at ~~the~~an equatorial position;



wherein  $\text{P}^1$  is an OH-protecting group selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, trimethylsilyl and triethyl silyl, and the wavy line means that  $-\text{NO}_2$  is linked at an axial or equatorial position, or mixture of both,

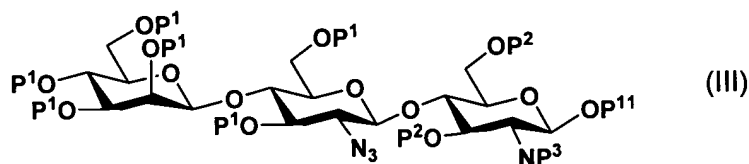
comprising a process of preparing a glycal compound, in which mannose of the reducing

terminal of the mannose disaccharide is converted to glycal, by halogenation and reduction of the mannose disaccharide compound (a type of  $\text{ManP}^1\beta 1 \rightarrow 4\text{ManP}^1$ ) shown with the formula (I);



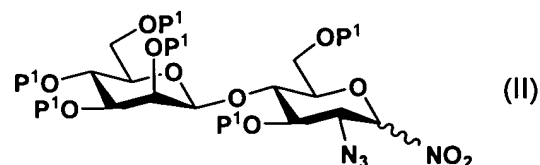
wherein  $P^1$  is the same as described above and the wavy line means that  $-\text{OP}^1$  is linked at an axial or equatorial position, or mixture of both, and subsequent azidenitration reaction of the glycal compound.

7. (Currently amended) A method for preparing ~~the~~ a trisaccharide compound shown with the formula (III);

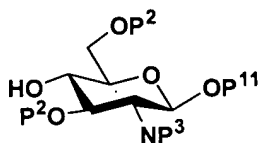


wherein  $P^1$ ,  $P^2$  and  $P^{11}$  are independently OH- protecting groups selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, trimethylsilyl and triethyl silyl, and  $P^3$  is an amino-protecting group selected from the group consisting of phthalimide, tert-butyloxycarbonyl, benzyloxycarbonyl, acetyl, benzoyl and benzyl, ~~wherein  $P^1$ ,  $P^2$ ,  $P^3$  and  $P^{11}$  are the same~~ above;

comprising a process of substituting the nitro group of the azide disaccharide compound (a type of  $\text{ManP}^1\beta 1 \rightarrow 4\text{ManP}^1$ ) shown with the formula (II) with a leaving group selected from the group consisting of fluorine atom, chlorine atom, trihaloacetoimide, pentenyl, alkylthio and arylthio;

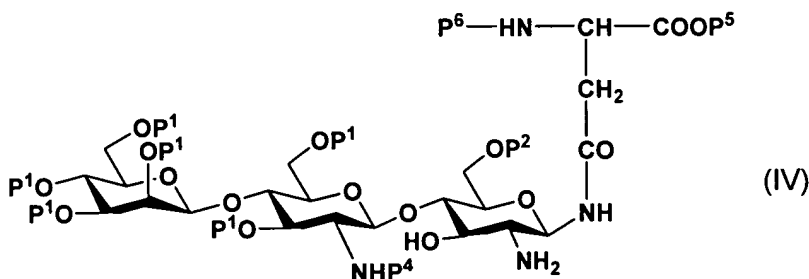


wherein  $P^1$  is the same as described above, the wavy line means that  $-\text{NO}_2$  is linked at an axial or equatorial position, or mixture of both, and the a 2-azide group of mannose in the reducing terminal is linked at the equatorial position, and next, reacting the substituted compound having the leaving group with amino-protected glucopyranoside of the formula;

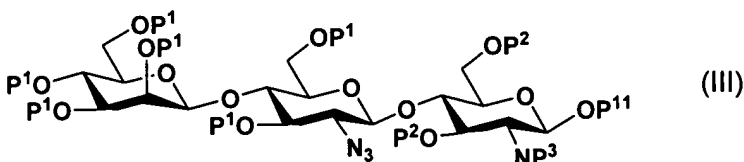


wherein  $P^2$ ,  $P^3$  and  $P^{11}$  are is an OH-protecting group the same as described above,  $P^3$  is an amino-protecting group and  $P^{11}$  is an OH-protecting group.

8. (Currently amended) A method for preparing an asparagine-linked trisaccharide compound ( $\text{Man}\beta 1 \rightarrow 4\text{GlcNP}^1\beta 1 \rightarrow 4\text{GlcNP}^2$ ) shown with the formula (IV)

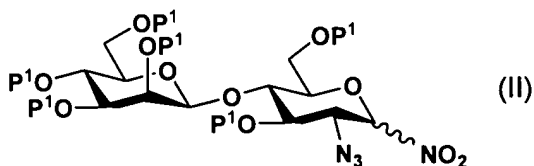


wherein  $P^1$  and  $P^2$  are independently OH-protecting groups selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, trimethylsilyl and triethyl silyl, the same above,  $P^4$  and  $P^6$  are independently amino-protecting groups selected from the group consisting of phthalimide, tert-butyloxycarbonyl, benzyloxycarbonyl, acetyl, benzoyl and benzyl, and  $P^5$  is a carboxyl-protecting group which is t-Bu, by coupling of the reducing terminal of the trisaccharide deprotecting the  $P^{11}$  group of the compound (III),



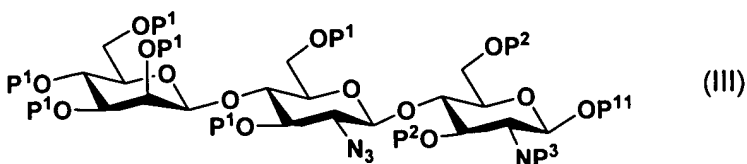
wherein  $P^1$ , and  $P^2$  are the same as described above,  $P^3$  is an amino-protecting group selected from the group consisting of phthalimide, tert-butyloxycarbonyl, benzyloxycarbonyl, acetyl, benzoyl and benzyl, and  $P^{11}$  is an OH-protecting group selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, trimethylsilyl and triethyl silyl, reducing the azide group to an amino group, protecting the amino group with an acetyl group, forming an oxazoline ring simultaneously with deprotecting a hydroxy group of a reducing terminal, and coupling with a protected asparagines derivative after introducing a  $-N=C=S$  group at the reducing terminal. and  $P^{11}$  are the same above, with a protected asparagine derivative.

9. (Currently amended) The An azide disaccharide (a type of  $\text{ManP}^1\beta 1 \rightarrow 4\text{ManP}^1$ ) compound shown with the formula (II);



wherein  $P^1$  is an OH-protecting group selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, trimethylsilyl and triethyl silyl, and the wavy line means that  $-\text{NO}_2$  is linked at an axial or equatorial position, or mixture of both.

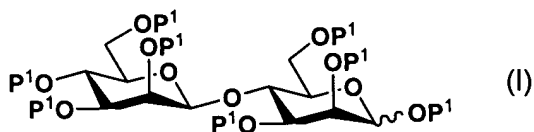
10. (Currently amended) The A trisaccharide compound (a type of  $\text{Man}\beta 1 \rightarrow 4\text{GlcNP}^1\beta 1 \rightarrow 4\text{GlcNP}^2$ ) shown with the formula of (III);



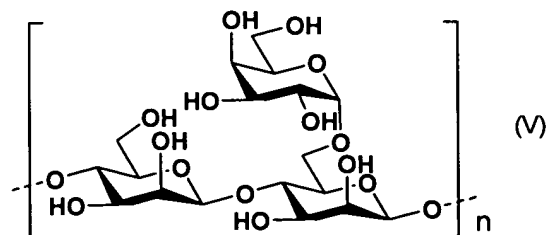
wherein  $P^1$ ,  $P^2$  and  $P^{11}$  are independently OH-protecting groups selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, trimethylsilyl and triethyl silyl, and  $P^3$  is an amino-protecting group selected from the group consisting of phthalimide, tert-butyloxycarbonyl, benzyloxycarbonyl, acetyl, benzoyl and benzyl.

11. (New) A method for preparing a trisaccharide ( $\text{Man}\beta 1 \rightarrow 4\text{GlcN}\beta 1 \rightarrow 4\text{GlcN}$ ) of a reducing terminal in a core sugar chain structure of an asparagine-linked glycoprotein, comprising

(1) a process of preparing a mannose disaccharide compound (a type of  $\text{Man}P^1\beta 1 \rightarrow 4\text{Man}P^1$ ) of the formula (I)



wherein  $P^1$  is an OH-protecting group selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, trimethylsilyl and triethyl silyl, and the wavy line means that  $-OP^1$  is linked at an axial or equatorial position, or mixture of both,  
 by hydrolyzing guar gum or galactomannan of the formula (V);



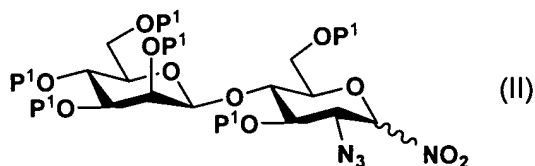


wherein n is an integer of 50 or more,  
 and protecting OH groups of the resulting hydrolysate.

12. (New) The method for preparing a trisaccharide ( $\text{Man}\beta 1 \rightarrow 4\text{GlcN}\beta 1 \rightarrow 4\text{GlcN}$ ) of a reducing terminal in a core sugar chain structure of an asparagine-linked glycoprotein of claim 11, further comprising each of

(2) a process of preparing a glycal compound, in which mannose of a reducing terminal of the mannose disaccharide is converted to glycal, by halogenation and reduction of the mannose disaccharide (a type of  $\text{ManP}^1\beta 1 \rightarrow 4\text{ManP}^1$ ), and

(3) a process of preparing an azide disaccharide compound (a type of  $\text{ManP}^1\beta 1 \rightarrow 4\text{ManP}^1$ ) shown with formula (II) in which a 2-azide group of mannose in a reducing terminal is linked at an equatorial position;

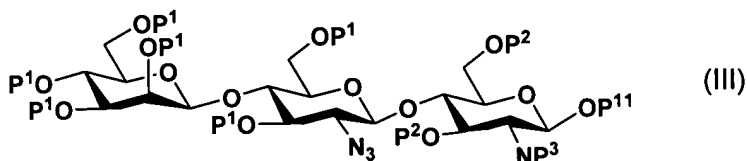


wherein  $\text{P}^1$  is the same as described above, the wavy line means that  $-\text{NO}_2$  is linked at an axial or equatorial position, or mixture of both,  
 by azidenitration reaction of the glycal compound above.

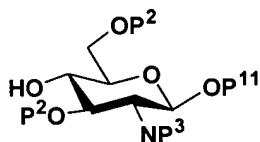
13. (New) The method for preparing a trisaccharide ( $\text{Man}\beta 1 \rightarrow 4\text{GlcN}\beta 1 \rightarrow 4\text{GlcN}$ ) of a reducing terminal in a core sugar chain structure of an asparagine-linked glycoprotein of claim 12, further comprising

(4) a process of substituting the nitro group of the azide disaccharide compound (a type of  $\text{ManP}^1\beta 1 \rightarrow 4\text{ManP}^1$ ) with a leaving group selected from the group consisting of fluorine atom, chlorine atom, trihaloacetoimidate, pentenyl, alkylthio and arylthio, and

(5) a process of preparing a trisaccharide compound (a type of  $\text{Man}\beta 1 \rightarrow 4\text{GlcNP}^1\beta 1 \rightarrow 4\text{GlcNP}^2$ ) shown with the formula (III);



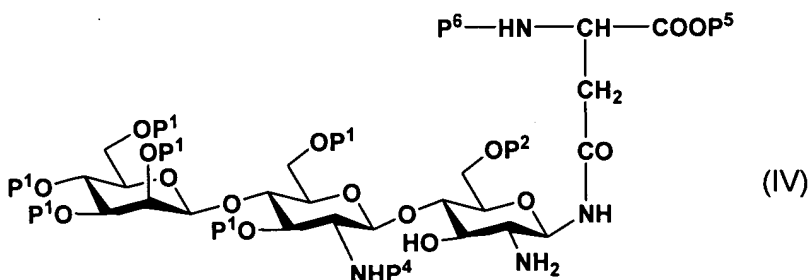
wherein  $P^1$  is an OH- protecting group, as described above,  $P^2$  is an OH-protecting group selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, trimethylsilyl and triethyl silyl,  $P^3$  is an amino-protecting group selected from the group consisting of phthalimide, tert-butyloxycarbonyl, benzyloxycarbonyl, acetyl, benzoyl and benzyl, and  $P^{11}$  is an OH-protecting group selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, trimethylsilyl and triethyl silyl, by a reaction of the product having the leaving group with amino-protected glucopyranoside shown with the formula;



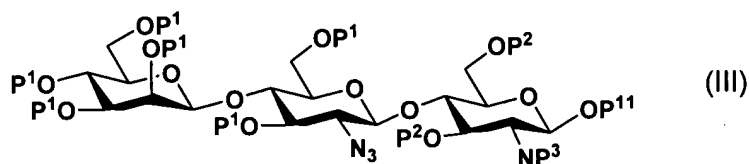
wherein  $P^2$ ,  $P^3$ , and  $P^{11}$  are the same as described above.

14. (New) The method for preparing a trisaccharide ( $\text{Man}\beta 1 \rightarrow 4\text{GlcN}\beta 1 \rightarrow 4\text{GlcN}$ ) of a reducing terminal in a core sugar chain structure of an asparagine-linked glycoprotein of claim 13, further comprising

(6) a process of preparing an asparagine-linked trisaccharide ( $\text{Man}\beta 1 \rightarrow 4\text{GlcNP}^1\beta 1 \rightarrow 4\text{GlcNP}^2$ ) compound shown with the formula (IV);



wherein  $P^1$  and  $P^2$  are independently OH- protecting groups, as described above,  $P^4$  and  $P^6$  are independently amino-protecting groups selected from the group consisting of phthalimide, tert-butyloxycarbonyl, benzyloxycarbonyl, acetyl, benzoyl and benzyl, and  $P^5$  is a carboxyl-protecting group which is t-Bu, by deprotecting the  $P^{11}$  group of the compound (III),



wherein  $P^1$ ,  $P^2$  and  $P^{11}$  are independently OH- protecting groups, as described above, and  $P^3$  is an amino-protecting group, as described above, reducing the azide group to an amino group, protecting the amino group with an acetyl group, forming an oxazoline ring simultaneously with deprotecting a hydroxy group of a reducing terminal, and coupling with a protected asparagine derivative after introducing a  $-N=C=S$  group at the reducing terminal.